



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,946	03/24/2004	Shunji Kawamura	16869N-111900US	6341
20350	7590	08/11/2005	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			CHU, GABRIEL L	
		ART UNIT		PAPER NUMBER
				2114

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,946	KAWAMURA ET AL.	
	Examiner	Art Unit	
	Gabriel L. Chu	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 March 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9 and 12-14 is/are rejected.
- 7) Claim(s) 10,11 and 15 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040324 20041101.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Objections

1. **Claims 1, 4, 5, 7, 8, 10, 11, 12, objected to because of the following informalities:**

Referring to claim 1, "said second computer" has no antecedent. It is understood to refer to "a second computer."

Referring to claims 4, 5, 7, 8, 10, 11, "switching... at such timing" appears to be an artifact of machine translation given its awkward use of language. Examiner understands this to refer to "switch... at a time". For example, in claim 4, "wherein said switch is made at a time designated by a user". Words such as "when" and "occur" may also aid in clarifying these claims.

Referring to claim 10, "plurality of logical volume" is understood to refer to "plurality of logical volumes".

Referring to claim 12, "said second" is understood to refer to "said second storage system".

Referring to claim 15, "said storage" is understood to refer to "said second storage".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.** Referring to claim 8, "said switching is made at such timing that all logical volumes which store a journal used for recovery are recovered" is not clear. As written, it may be interpreted as the journals themselves are recovered. Examiner understands this to refer to the data that is recovered, as such "said switch is made at a time that all logical volumes which store a journal used for recovery are used for recovery".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-8 rejected under 35 U.S.C. 102(b) as being anticipated by US**

6298345 to Armstrong, Jr. et al. Referring to claim 1, Armstrong discloses a primary site which includes a first computer (Figure 1, 110.) and a first storage system connected to said first computer (Figure 1, 120.); and

a secondary site which includes a second storage system (Figure 1, 155.) connected to a second computer (Figure 1, 130, 155. From line 40 of column 7, Armstrong discloses interfaces may have microprocessors, and that I/O adapters may also be used.);

said first storage system and said second storage system are connected to each

other via a communication line (Figure 1, 160, the portion from 120 to 155.); said first storage system records update history of data as a journal in a storage device (Figure 1, 128.), and transfers said journal to said second storage system via said communication line (Figure 7, 720, "Write Bundle on Journal Arm to Disk."); and said second storage system stores said transferred journal to a storage device (Figure 7, 720, "Write Bundle on Journal Arm to Disk").

6. Referring to claim 2, Armstrong discloses said second storage system executes data recovery based on said stored journal (Figure 4, 430, "Process Journal Entry to Recover Database").

7. Referring to claim 3, Armstrong discloses said journal recorded in the storage device of said first storage system is stored in a plurality of logical volumes (From line 17 of column 7, "Journal 128 residing in main memory 120 represents a data storage area that is divided into arms, such as arm #1, arm #2, and arm #3 of FIG. 2. These arms are referred to as "logical arms" because they constitute a portion of main memory 120 that correlates to physical arms on DASD 155."), and

while the journal is stored in a certain logical volume, a logical volume for storage is switched to another logical volume (From line 26 of column 9, "simultaneous deposits on different logical arms").

8. Referring to claim 4, Armstrong discloses said switch is made at a time designated by a user (From line 10 of column 11, "Thus, it is the user's responsibility to assure that interdependent entries are serialized before the journaling system is invoked.").

Art Unit: 2114

9. Referring to claim 5, Armstrong discloses said switch is executed at a time that transfer of the logical volume in which the target journal for transfer to said secondary site is stored is completed (From figure 6, 640, "Ready to Write a Bundle?").

10. Referring to claim 6, Armstrong discloses said transferred journal in said second storage system is stored in a plurality of logical volumes (From line 17 of column 7, "Journal 128 residing in main memory 120 represents a data storage area that is divided into arms, such as arm #1, arm #2, and arm #3 of FIG. 2. These arms are referred to as "logical arms" because they constitute a portion of main memory 120 that correlates to physical arms on DASD 155."), and

while the journal is transferred to a certain logical volume, a transfer-target logical volume is switched to another logical volume (From figure 9, 960 (with emphasis) "Write Bundle on Journal Arms to Disk").

11. Referring to claim 7, Armstrong discloses said switch is made at a time designated by a user (From line 38 of column 13, Armstrong discloses processors (users of the journal/database), said processors creating bundles, such bundles as created by processors indicating when they are to be written. See figure 6.).

12. Referring to claim 8, Armstrong discloses said second storage system recovers data based on said stored journal (Figure 4, 420 "Read Journal Entry... from Disk", 430 "Process Journal Entry to Recover Database"), and

said switch is made at a time that all logical volumes which store a journal used for recovery are used for recovery (From figure 4, 420 "Read Journal Entry... from Disk", 440 "All Sequence Numbers Processed?").

13. **Claim 1 rejected under 35 U.S.C. 102(b) as being anticipated by US 6052696 to Euler et al.** Referring to claim 1, Euler discloses a primary site which includes a first computer (Figure 2, 112, 226.) and a first storage system connected to said first computer (Figure 2, 295, 299.); and

a secondary site which includes a second storage system connected to a second computer (Figure 2, 188.);

said first storage system and said second storage system are connected to each other via a communication line (Figure 2, 234, 285, 160.);

said first storage system records update history of data as a journal in a storage device (Figure 2, 295.), and transfers said journal to said second storage system via said communication line (From line 5 of column 5, "Remote computer system 188 can be implemented utilizing any suitable computer that contains non-volatile storage. But, a preferred embodiment of the present invention can apply to any hardware configuration that allows journaling of records, regardless of whether the computer system is a complicated, multi-user computing apparatus, a single-user workstation, or a network appliance that does not have non-volatile storage of its own."); and

said second storage system stores said transferred journal to a storage device (From line 5 of column 5, "Remote computer system 188 can be implemented utilizing any suitable computer that contains non-volatile storage. But, a preferred embodiment of the present invention can apply to any hardware configuration that allows journaling of records, regardless of whether the computer system is a complicated, multi-user

computing apparatus, a single-user workstation, or a network appliance that does not have non-volatile storage of its own.”).

14. Claim 12, 14 rejected under 35 U.S.C. 102(b) as being anticipated by US

5412801 to de Remer et al. Referring to claim 12, de Remer discloses a primary site which includes a first computer (Figure 18, element 16) and a first storage system connected to said first computer (Figure 18, elements 18, 46.); and

a secondary site which includes a second computer and a second storage system connected to said second computer (Figure 18, elements 24, 47.); wherein,

 said first computer and said second computer are connected to each other via a first communication line (From figure 18, the central and remote are shown to be connected.),

 said first storage system and said second storage system are connected to each other via a second communication line (From figures 18 and 1, the data storage facilities of either mainframe are connected. From line 24 of column 43, storage systems in either mainframe are connected for the purpose of transferring journal data.),

 said first storage system records data update history in a storage device as a journal (From figure 18, “log data set.”),

 said first computer acquires information related to said journal from said first storage system and transmits the information to said second storage system via said first communication line (From line 24 of column 43, “In summary, one aspect of the present invention is a method of logging a complete series of journal data to a remote site (FIG. 1-70,74), where there may be a gap in the series of data, which would have to

be recovered so that the gap can be filled in with the data belonging in the gap. This is done by copying the journal data (FIG. 2-80,48; FIG. 3-48,88,100) as it is being produced by a DBMS; transmitting the copied journal data to the remote site (FIG. 3-92,102,97,64").),

 said first storage system transfers said journal to said second storage via said second communication line, and said second storage system stores the transferred journal in a storage device (From line 24 of column 43, the central mainframe transmits journal data to the remote.).

15. Referring to claim 14, de Remer discloses data recovery in said second storage system is executed by a recovery program to be executed on said second computer base don said transferred journal (From line 47 of column 34, "FIG. 14 shows the DBMS recovery programs which are run on the mainframe at the remote site shown in FIG. 1. The recovery process is initiated by an operator at the console 44 (FIG. 1) by requesting that MVS 20 open a new X region 800 and initiate the program E1EXTJ 802. E1EXTJ 802 creates JCL files 804 which, when run, extract and reformat data from tapes 61 to DBMS archive format tapes 820.").

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. **Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6052696 to Euler et al. as applied to claim 1 above, and further in view of US 5146561 to Carey et al.** Referring to claim 9, although Euler does not specifically disclose said second storage system acquires information related to a journal recorded in said first storage system, and said second storage system issues a command requesting said first storage system to send said journal, requesting data to be sent after receiving a data ready signal is known in the art. An example of this is shown by Carey et al., from line 59 of column 13, "If a send task has been attached by the queue manager, as discussed above, then at step 1 the send task 90-A allocates a conversation over the integrated data network, which provides the appropriate interconnection at a step 2. Once the conversation has been initiated, then the send task 90-A sends a request to send dataset (RTSD) to target Host B at step 3. At the target Host B, the communication services task 84-B, as discussed above relative to FIG. 9. The queue manager task 82-B then attaches the receive task 92-B. The request to send dataset includes a send request. The receive task is responsible for matching the send request to receive parameters at the target Host B as discussed in greater detail below. Also, the receive task 92-B builds an RAQE. If the above cannot be completed, for example no match can be found, then the conversation terminates. Assuming everything is in order, then at a step 4, the receive task 92-B sends a permission to send dataset PTSD signal back to the send task 90-A to be transmitted." A person of ordinary skill in the art at the time of the invention would have been motivated to incorporate the ready/send system of Carey with a remote journaling

system because, from line 26 of column 12 of Carey, "To initiate the transfer of a dataset from the Host A system to the Host B system, a send task 90-A in the Host A system must communicate with a receive task 92-B of the Host B system. The send task 90-A is attached by the work queue manager task 82-A, and is operable to read a dataset directly from a DASD 42 or tape device 40, see FIG. 4, and pass the dataset through the VTAM interface 58-A to be transmitted to the remote system 30-B. No intermediate spooling or queueing of the dataset is required."

18. **Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over US 5412801 to de Remer et al. as applied to claim 1 above, and further in view of US 5146561 to Carey et al.** Referring to claim 13, although de Remer et al. does not specifically disclose said second storage system issues a command requesting said first storage system to send said journal, requesting data to be sent after receiving a data ready signal is known in the art. An example of this is shown by Carey et al., from line 59 of column 13, "If a send task has been attached by the queue manager, as discussed above, then at step 1 the send task 90-A allocates a conversation over the integrated data network, which provides the appropriate interconnection at a step 2. Once the conversation has been initiated, then the send task 90-A sends a request to send dataset (RTSD) to target Host B at step 3. At the target Host B, the communication services task 84-B, as discussed above relative to FIG. 9. The queue manager task 82-B then attaches the receive task 92-B. The request to send dataset includes a send request. The receive task is responsible for matching the send request to receive parameters at the target Host B as discussed in greater detail below. Also,

the receive task 92-B builds an RAQE. If the above cannot be completed, for example no match can be found, then the conversation terminates. Assuming everything is in order, then at a step 4, the receive task 92-B sends a permission to send dataset PTSD signal back to the send task 90-A to be transmitted." A person of ordinary skill in the art at the time of the invention would have been motivated to incorporate the ready/send system of Carey with a remote journaling system because, from line 26 of column 12 of Carey, "To initiate the transfer of a dataset from the Host A system to the Host B system, a send task 90-A in the Host A system must communicate with a receive task 92-B of the Host B system. The send task 90-A is attached by the work queue manager task 82-A, and is operable to read a dataset directly from a DASD 42 or tape device 40, see FIG. 4, and pass the dataset through the VTAM interface 58-A to be transmitted to the remote system 30-B. No intermediate spooling or queueing of the dataset is required."

Allowable Subject Matter

19. Claims 10, 11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. Referring to claim 10, the prior art does not teach or fairly suggest in light of the parent claims, said journal recorded in a storage device of said first storage system is stored in a plurality of logical volumes, a logical volume for storage is switched to another logical volume, while the journal is stored in a certain logical volume, and said

Art Unit: 2114

switching is made at a time that a command for requesting dispatch of said journal is received from said second storage system.

21. Referring to claim 11, the prior art does not teach or fairly suggest in light of the parent claims, said transferred journal in said second storage system is stored in a plurality of logical volumes, a transfer-target logical volume is switched to another logical volume, while the journal is transferred to a certain logical volume, and said switching is made at a time that said journal transfer is started at said first storage system.

22. **Claim 15 objected to for having objectionable subject matter, but would otherwise be allowable.** Referring to claim 15, the prior art does not teach or fairly suggest said second storage control system executes a journal reflection program which recovers data based on a journal, in the scope and context of claim 15.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 20040122796 to Akyama et al.

US 20050060346 to Schmid

US 6055604 to Voigt et al.

US 6182121 to Wlaschin

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel L. Chu whose telephone number is (571) 272-

3656. The examiner can normally be reached on weekdays between 8:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel, Jr. can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gc


ROBERT BEAUSOLIEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100